

Name _____

Period _____

Classifying Mixtures Lab: Solutions, Suspensions, and Colloids

Purpose: to differentiate between a solution, a suspension, and a colloid.

Pre-Lab Questions (see textbook pp. 28-29 for assistance).

1. What is the **Tyndall Effect**?
 2. If a mixture separates upon standing, the mixture must be a _____.
 3. If a mixture does NOT separate upon standing and the Tyndall Effect is NOT seen, the mixture must be a _____.
 4. If a mixture does NOT separate upon standing and the Tyndall Effect IS observed, the mixture must be a _____.
 5. Solutions do not exhibit the Tyndall Effect. Why?
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Materials:

7 test tubes, 7 rubber stoppers, 10 mL graduated cylinder, Test tube rack, Test tube brush, Labeling tape, Laser pointer or flashlight

Procedure:

1. Label your test tubes from 1-7.
2. Prepare the following mixtures. Shake the contents of each tube to mix thoroughly.

Tube	Mixture Ingredients
1	10 mL tap water
2	0.2 grams cornstarch and 10 mL of tap water
3	0.5 grams clay or soil and 10 mL of tap water
4	2 drops food coloring and 10 mL of tap water
5	0.2 grams sodium chloride and 10 mL of tap water
6	3 drops of milk and 10 mL of tap water
7	30 drops of vegetable oil and 10 mL of tap water

3. Observe each of the 7 mixtures and record your observations in the table provided.
4. Stopper each tube and shake for 10 seconds. Allow the mixtures to stand for 1-2 minutes and record your observations.
5. Test each mixture for the **Tyndall Effect** by shining a flashlight or laser pointer through each tube. Record your observations. (You may need to darken the room in order to see the results clearly).
6. Using your observations, classify each mixture as a solution, suspension, or colloid.
7. Dispose of all solutions down the drain and flush with plenty of water. Wash the test tubes thoroughly with soap, water, and a test tube brush. Allow them to dry upside down on your test tube rack. Return all other materials and be sure your lab table is clean.

Classifying Mixtures - Observations Table

Test Tube	Mixture	Description of mixture at the start of the experiment	What happens after the mixture is shaken and then allowed to stand?	What happens when light shines through the mixture?	Is the mixture a solution, suspension, or colloid?
1	Tap Water				
2	Starch & Water				
3	Clay & Water				
4	Food Coloring & Water				
5	Sodium Chloride & Water				
6	Milk & Water				
7	Oil & Water				

Follow-up Question:

Suppose you were asked to separate each of the mixtures used in this experiment. Which do you think would be easiest to separate? Which do you think would be most difficult to separate? **Please justify your answers!** Use separate paper if necessary.